

2-2.23 Electrical System Plans and Details

General

Electrical system work is covered by Section 86 of the Standard Specifications and the "ES" (Electrical System) series of the Standard Plans. If other types of work, such as signing work, is necessary to be shown on the electrical system plan sheets, this additional work must be properly referenced for payment.

If subsurface facilities (including State-owned underground utilities and underground utilities owned by others) are within the areas where electrical system work is to be performed and these subsurface facilities are not shown on the project utility plan sheets, then they are to be shown on the electrical system plan sheets.

High risk and low risk subsurface facilities shall be shown on the plans as provided in the "Policy on High and Low Risk Underground Facilities Within Highway Rights of Way."

Accuracy of the locations of State-owned subsurface utilities should not hinder disclosure of subsurface facility information. The location of these facilities are to be shown to the best degree of information available.

Plan Sheets

Electrical system plans provide a visual representation in plan view aspect of the project electrical work.

A modified version of the base mapping for the project layout sheets is typically used as

the background for the electrical work plans. Clipped out areas of the base mapping with a plotting scale of 1" = 20' are typically used to show signal and lighting work at road intersections. Design features such as pavement edges, dikes, sidewalks, etc, should be shown as existing (dropped out). Plan sheets for electrical work shall contain project specific control data, such as horizontal alignment lines with station annotations, right of way lines and easements shown in solid format. See Section 2-1.1 regarding right of way information to be shown.

Structure lighting plans are generally prepared from the General Plan of the structure involved, with bridge design elements dropped out, and non-pertinent details and notes removed.

Electrical system work is usually paid for on a lump sum basis, plan sheet names should match the bid items for the work shown. It is desirable that the electrical plan sheets show the work of only one bid item. Plan sheets that show the work of more than one lump sum, unit or combination bid items must clearly define the pay items for each portion of work, and the plan sheet name must include each item. Bidders must be able to identify all work with its associated bid item.

Plan sheet names for electrical work shall conform to, but not be limited to the following:

- SIGNAL AND LIGHTING
- LIGHTING
- SIGN ILLUMINATION
- LIGHTING AND SIGN ILLUMINATION

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- CHANGEABLE MESSAGE SIGN SYSTEM
- CLOSED CIRCUIT TELEVISION SYSTEM
- EXTINGUISHABLE MESSAGE SIGN SYSTEM
- FLASHING BEACON
- RAMP METERING SYSTEM
- TRAFFIC MONITORING STATION
- INTERCONNECTION SYSTEM
- COMMUNICATION SYSTEM
- ELECTRIC SERVICE (IRRIGATION)

Modifiers are not needed unless their use helps in understanding the work and they are included in the respective bid item description. Modifiers may be used when appropriate (examples: Location 1, Temporary, City, Remove, Detour, etc.).

Modifiers should be placed in parentheses at the right of or below the main plan name.

The only information to be shown at the lower right corner of the sheet is the plan sheet name, scale and sheet identification code (E-1, E-2, etc.).

Each plan sheet for the electrical work shall have this note included on them: "THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY."



Notes, Legends and Abbreviations


Notes should be brief and direct. Detailed word descriptions belong in the special provisions.

Notes, non-standard symbols and abbreviations should be located on or before the first plan sheets where they apply.

Non-standard legends and abbreviations should not be mixed with the project notes, but it is desirable that they be on the same plan sheet.

General notes applicable to the project are either not numbered or, if numbered, they are not enclosed in a square.

Project notes that are specific for one or more locations shall be numbered and enclosed with a square to match the designation shown at each location of work; example: . Equipment or material designations are drawn inside circles; example: 

Conduit for conductors runs are drawn inside triangles; example: 

Acronyms, symbols and abbreviations as shown on Standard Plans ES-1A, ES-1B, ES-1C, A10A, A10B, A10C, A10D, H1, and H2 are to be used to prepare the electrical system plan sheets.

The electrical systems for building construction projects have their own conventions regarding notes, abbreviations and symbols and are maintained by the Transportation Architecture Branch of the Office of Structure Design.

Electrical Details

Sufficient dimensioning and information shall be shown on the details so that the facilities are buildable and the quantities are calculable. Each detail or sheet is to be labeled "NO SCALE."

Standard Drawings from Other Agencies

Standard drawings from other agencies, when applicable to the project, shall be included as part of the project plans. Referencing to a standard drawing number from another agency is not acceptable.

Standard drawings from other agencies must be incorporated on project plan sheets, and such plan sheets shall have the signature, date signed and seal of the lowest classification licensed person in responsible charge for preparation of the plans. Generally, the project electrical engineer will sign these sheets.

When using standard drawings from other agencies, enlarge drawings, as necessary, to fit appropriately within the Caltrans border sheet.

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